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NAVY ELECTRONICS LAB SAN DIEGO CALIF
TERMINATION OF THE TR-208 (MASSA) ACTIVE TRANSDUCER WHEN THE PA--ETC(U)
JUN 66 H J KLEE

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This is a working paper giving tentative information about some work in progress at NEL.
If cited in the literature the information is to be identified as tentative and unpublished.

1062
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TECHNICAL MEMORANDUM

TM-1062V

(14) NEL-TM-1062

(6) TERMINATION OF THE TR-208 (MASSA) ACTIVE TRANSDUCER WHEN THE PAIR (AN/SQQ-23)
SYSTEM IS IN THE RECEIVE MODE.

(11) 21 June 1966

(12) 6P.

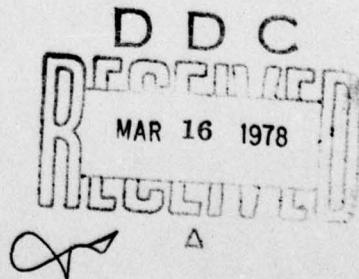
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Termination of the TR-208 (Massa)
Active Transducer when the PAIR
(AN/SQQ-23) System is in the
Receive Mode

by

H. J. Klee

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21 June 1966

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This technical memorandum represents a portion of the work being done on NEL Problem J714, AN/SQS-23 Performance and Integration Retrofit (PAIR) Program. It should not be construed as a formal report as its primary intent is to present some of the problems confronting project personnel and some of the preliminary conclusions. While it was originally published in a different form, it is now being included in the technical memorandum series for sake of documentation uniformity and control. Limited outside distribution is intended.

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TABLE OF GRAPHS

1. Graph 1 - Comparison of the Receiving Response, AGDE Hydrophone (Serial #X-224) in front TR-208/SQS-23 Transducer and the Scattering Response in front of a Terminated TR-208 Element (Based on preliminary TRANSDEC data)
2. Graph 2 - Comparison of the PAIR Hydrophone Receiving Response in front of the PAIR aft Cylindrical Baffle and the Scattering Response in front of a Terminated TR-208 Element (based on preliminary TRANSDEC data)

Preliminary results from dumiload measurements and scattering tests conducted using the TR-208 active transducer element, indicate that a marked improvement can be made in the receiving response of the PAIR hydrophones when they are situated in front of the active transducer. The active elements are correctly terminated.

Scattering tests on a TR-208 element conducted at TRANSDEC on 6 June 1966 when terminated in (a) open circuit condition and (b) short circuit condition indicate very close agreement with results of tests conducted at Boston Naval Shipyard on 2 - 8 February 1966 with a preliminary PAIR hydrophone mounted in front of the complete TR-208 transducer. Graph 1 compares the results of these tests with TRANSDEC single element results.

Using terminating components whose values were determined in the NEL dumiload measurements, the scattering test of the TR-208 terminated element is compared with the theoretical receiving response computed by Sperry Gyroscope Company using the results of the dummy baffle tests of TRANSDEC.

Additional tests are in progress to further delineate termination values for each of the active transducers that will be used in the PAIR program.

Terminating components will be installed on the TR-208 active transducer during the receiving tests at NELPOCS scheduled for August, September 1966.

COMPARISON OF THE RECEIVING RESPONSE, AGILE HYDROPHONE (SERIAL # X-224) IN FRONT OF A TERMINATED TR-208/SQS-23 TRANSDUCER AND THE SCATTERING RESPONSE IN FRONT OF A TERMINATED TR-208 ELEMENT (BASED ON PRELIMINARY TRANSDEC DATA)

-90

-100

-110

-120

-10

0

10

20

30

40

50

60

70

80

90

FREE FIELD

TR-208/SQS-23 OPEN CIRCUITED

TR-208/SQS-23 SHORT CIRCUITED

HYDROPHONE-DUCER SPACING: 0.75 INCH

ESTIMATED HYDROPHONE RESPONSE
(FOR COMPARISON PURPOSES)

FREE FIELD

SCATTERING RESPONSE - TR-208 ELEMENT TERMINATED OPEN-CIRCUITED

SCATTERING RESPONSE - TR-208 ELEMENT TERMINATED CLOSED-CIRCUITED

HYDROPHONE-DUCER SPACING: 0.5 INCH

GRAPH 1

FREQUENCY (KHZ)

MECHANICAL & ELECTRICAL

NOTE: EACH X 20 DIAMETERS = VIBRATION

MECHANICAL & ELECTRICAL

NOTE: 200-FOOT VIBRATING

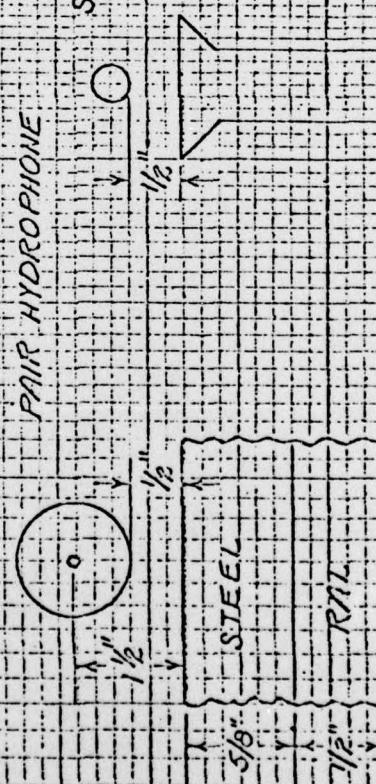
SO SPOTS

COMPARISON OF THE PAIR HYDROPHONE RECEIVING RESPONSE IN FRONT OF THE JET CYLINDRICAL Baffle AND THE SCATTERING RESPONSE IN FRONT OF A TERMINATED TR-208 ELEMENT (BASED ON PRELIMINARY TRANSDUCER DATA)

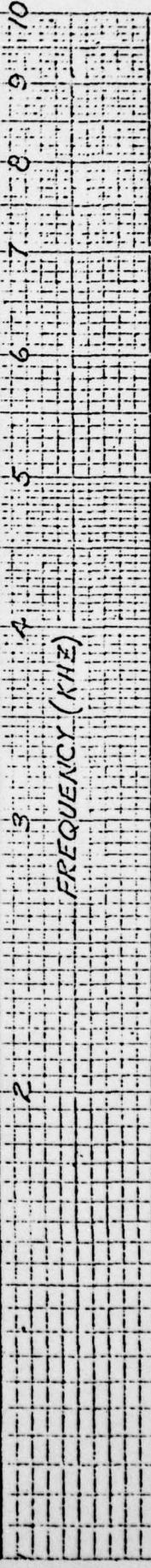
A - PAIR HYDROPHONE RESPONSE IN FRONT OF JET CYLINDRICAL Baffle
 B - SCATTERING RESPONSE TR-208 ELEMENT TERMINATED
 C - SCATTERING RESPONSE TR-208 ELEMENT TERMINATED



PAIR HYDROPHONE
 SCATTERING TEST.
 HYDROPHONE



GRAPH 2



DRAWING NOT TO SCALE